



## 299-E33-82 (A6890)

### Log Data Report

#### Borehole Information:

<b>Borehole:</b> 299-E33-821 (A6890)		<b>Site:</b> 216-B-8 Crib			
<b>Coordinates (Plant)</b>		<b>GWL (ft) <sup>1</sup>:</b> Not Applicable		<b>GWL Date:</b>	
<b>North</b> 573822	<b>East</b> 137536	<b>Drill Date</b> 11/48	<b>TOC <sup>2</sup> Elevation</b> 625.0 ft	<b>Total Depth (ft)</b> 15	<b>Type</b>

#### Casing Information:

<b>Casing Type</b>	<b>Stickup (ft)</b>	<b>Outer Diameter (in.)</b>	<b>Inside Diameter (in.)</b>	<b>Thickness (in.)</b>	<b>Top (ft)</b>	<b>Bottom (ft)</b>
Welded Steel	0.9	8 5/8	8	5/16	0.9	Unknown

#### Borehole Notes:

The logging engineer measured the pipe stickup at the borehole using a steel tape. Calipers were used to measure casing OD and thickness only; the casing ID is calculated. Stickup was measured between survey points marked on the casing. Zero reference is the top of casing.

#### Logging Equipment Information:

<b>Logging System:</b> Gamma 2B	<b>Type:</b> SGLS HPGe (35%)
<b>Calibration Date:</b> 09/00	<b>Calibration Reference:</b> GJO-2001-245-TAR
<b>Logging Procedure:</b> MAC-HGLP 1.6.5	

#### Spectral Gamma Logging System (SGLS) Log Run Information:

<b>Log Run</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>
Date	9/10/01					
Logging Engineer	Spatz					
Start Depth (ft)	1.0					
Finish Depth (ft)	12.5					
Count Time (sec)	100					
Live/Real	R					
Shield (Y/N)	N/A <sup>3</sup>					
MSA Interval (ft)	0.5					
ft/min	N/A					
Pre-Verification	B0046CAB					
Start File	B0047000					
Finish File	B0046023					
Post-Verification	B0048CAA					
Depth Return Error	0					
Comments						

## **Logging Operation Notes:**

Zero reference is the top of casing. No fine-gain adjustments were made while logging this borehole. Pre-calibration file B0046CAB (borehole 299-E33-81) passed verification criteria. Log run began at 1.0 ft (file B0047000). The log run ended at 12.5 ft (file B0047023). At 12.9 ft, the sonde touched the bottom of the borehole, and logging was terminated.

## **Analysis Notes:**

<b>Analyst:</b>	Sobczyk	<b>Date:</b>	09/13/01	<b>Reference:</b>	MAC-VZCP 1.7.9 Rev. 2
-----------------	---------	--------------	----------	-------------------	-----------------------

Pre-run and post-run verification spectra for the SGLS were evaluated. These spectra are the same as for borehole 299-E33-81. The pre-survey verification spectrum was within the warning limits. The post-survey verification (file B0048CAA) was outside of the control limits. The photopeak counts per second for the 1461-keV peak and the 609-keV peak were below the lower control limits for the post-run verification spectrum. Examinations of spectra indicate that the detector appears to have functioned normally during the log run, and the spectra are provisionally accepted.

Individual spectra were processed in batch mode using APTEC Supervisor. Concentrations were calculated in EXCEL, using parameters determined from analysis of calibration data collected in August 2000. The casing configuration was assumed to be one string of 8-in. casing with a thickness of 5/16 in. These assumptions are consistent with the measurements taken by the logging engineer. Zero reference is the top of the casing. Water and dead time corrections were not needed.

## **Log Plot Notes:**

Separate log plots are provided for gross gamma and dead time, naturally occurring radionuclides ( $^{40}\text{K}$ ,  $^{238}\text{U}$ , and  $^{232}\text{Th}$ ), and  $^{137}\text{Cs}$ . For each radionuclide, the energy value of the spectral peak used for quantification is indicated. Unless otherwise noted, all radionuclides are plotted in picocuries per gram (pCi/g). The open circles indicate the minimum detectable activity (MDA) for each radionuclide. Error bars on each plot represent error associated with counting statistics only and do not include errors associated with the inverse efficiency function, dead time correction, or casing correction. These errors are discussed in the calibration report. A combination plot is also included to facilitate correlation.

## **Results and Interpretations:**

$^{137}\text{Cs}$ , which is a man-made radionuclide, was detected in this borehole. At ground surface (log depth 1.0 ft),  $^{137}\text{Cs}$  was observed with an activity of 47 pCi/g.  $^{137}\text{Cs}$  occurred between 1.0 and 5.0 ft at activities ranging from 0.2 pCi/g at 5.0 ft to 95 pCi/g at 1.5 ft. The high total gamma activity near the ground surface is attributed to  $^{137}\text{Cs}$  activities of nearly 100 pCi/g. In addition,  $^{137}\text{Cs}$  was observed between 11.5 and 12.5 ft with activities ranging from 0.2 to 0.7 pCi/g.

---

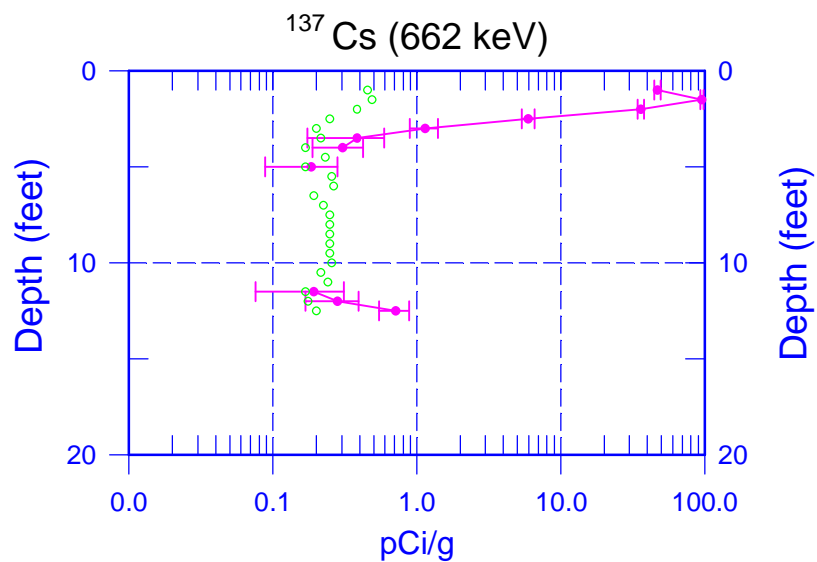
<sup>1</sup> GWL – groundwater level

<sup>2</sup> TOC – top of casing

<sup>3</sup> N/A – not applicable

## 299-E33-82 (A6890)

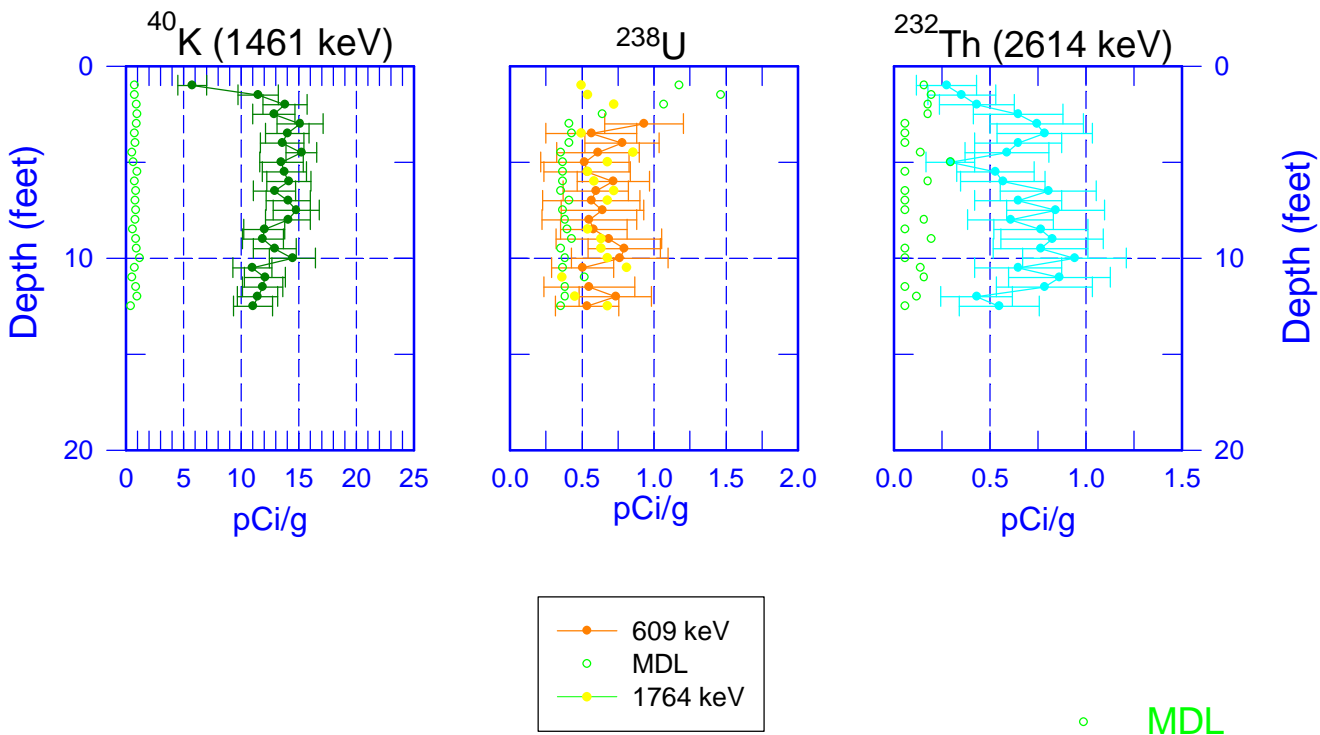
### Man-Made Radionuclide Concentrations



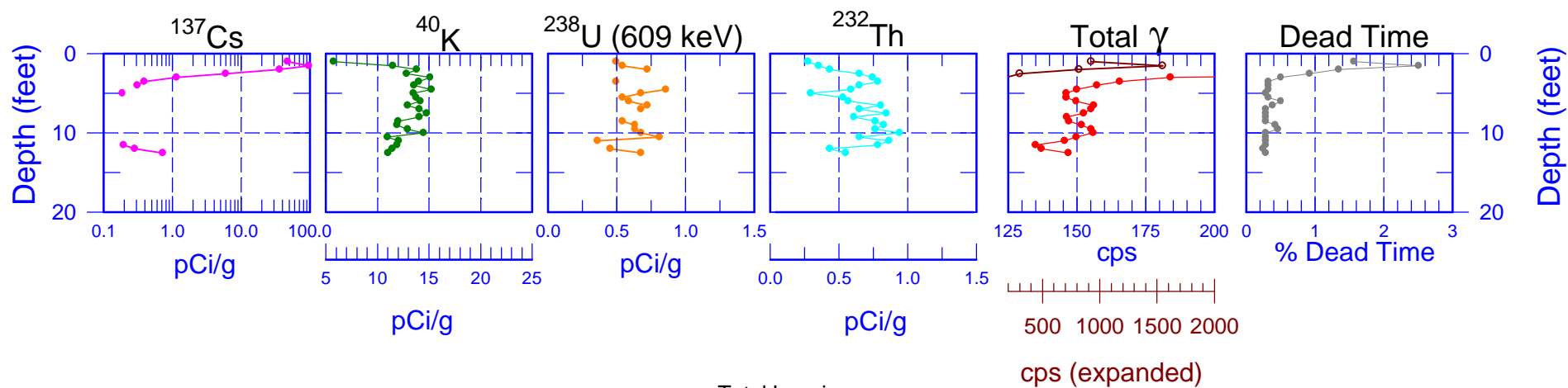
- MDL

# 299-E33-82 (A6890)

## Natural Gamma Logs



## 299-E33-82 (A6890) Combination Plot



# 299-E33-82 (A6890)

## Total Gamma & Dead Time

